

Renewable Natural Gas

The Future of RFS2, RINS and Corporate Sustainability

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THE COALITION FOR
**RENEWABLE
NATURAL GAS**

Presentation Overview

- ▶ The RNG Coalition
- ▶ What is RNG?
- ▶ The Case for RNG
- ▶ Industry Trajectory
- ▶ RFS2 & RINS
- ▶ Corporate Sustainability
- ▶ Your Role



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About David Cox

- ▶ 11 years on Transportation Fuel and Clean Air Policies
- ▶ CFO and Attorney for RNG Coalition
- ▶ Licensed in Texas, Oklahoma & California
- ▶ Specialized in
 - ▶ RNG Policy and Market Growth Opportunities
 - ▶ Corporate Sustainability Solutions
 - ▶ Energy Security & Independence Act, CAA Section 202
 - ▶ RFS2, RIN Markets & RIN Pathways



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RNG Coalition



RNG Coalition Mission

The RNG Coalition advocates for renewable natural gas development and deployment so that present and future generations will have access to domestic renewable clean fuel and energy supply.



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RNG Coalition Organization

- ▶ Non-Profit
- ▶ 75+ Members
- ▶ Offices in California, Texas & Washington DC
- ▶ Global Membership
- ▶ North America Education & Policy Focus
- ▶ Members Produce 90%+ of RNG in N.A. (98% of RFS)
- ▶ Connectors



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RNG Coalition Leadership



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RNG Coalition Members

Akin Gump
STRAUSS HAUER & FELD LLP

BIOCNG™

CALYSTA

Constellation™
An Exelon Company

DriveGreen

DTE Energy

Comerica Bank

ENERDYNE
Power Systems Inc.

EVENSO™
Environmental Energy Solutions

Canadian Gas Association
Association canadienne du gaz

EWING BEMISS & Co.
INVESTMENT BANKERS

ECOENGINEERS
People Driven Solutions

FC Gas Intelligence

FIRST ENVIRONMENT

EVONIK INDUSTRIES

GENSCAPE™

ENERGYNEERING SOLUTIONS INC.

THE LAW OFFICES OF
JEREMY D. WEINSTEIN
A PROFESSIONAL CORPORATION

McGUIREWOODS

FORTISTAR

KinetrexEnergy

IOGEN CORPORATION

SOUTHERN COMPANY

SUTHERLAND

NGVAMERICA
Natural Gas Vehicles for America

Renewable Dairy Fuels

ROESLEIN
ALTERNATIVE ENERGY, LLC

SCS ENGINEERS
SCS ENERGY

uniongas
A Spectra Energy Company

VILTER
since 1987

VNG™

SOLID WASTE AUTHORITY OF CENTRAL OHIO
SWACO

weaver
Assurance • Tax • Advisory

WCH WESTHOFF, CONE & HOLMSTEDT

xebec
A world powered by clean energy

xergi
excellence in biogas

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RNG Coalition Non-Profit Partners



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Proud Member of 16 Clean City Coalitions

- ▶ Alabama Clean Fuels
- ▶ Houston Galveston Clean Cities
- ▶ Clean Fuels Ohio
- ▶ Central Oklahoma Clean Cities
- ▶ Dallas Fort Worth Clean Cities
- ▶ Denver Clean Cities
- ▶ East Tennessee Clean Fuels
- ▶ Earth Day Coalition (NE Ohio)
- ▶ Lone Star Clean Fuels Alliance
- ▶ Louisiana Clean Cities
- ▶ Middle-West Tennessee Clean Fuels
- ▶ Southeast Louisiana Clean Fuel Partnership
- ▶ Triangle Clean Cities (NC)
- ▶ Tulsa Clean Cities
- ▶ Valley of the Sun Clean Cities Coalition (AZ)
- ▶ Virginia Clean Cities



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What is RNG?



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RNG PROJECTS CAPTURE THE GHG FROM FOOD AND OTHER ORGANIC WASTE THAT WOULD OTHERWISE ESCAPE INTO THE EARTH'S ATMOSPHERE.



POTENTIAL SOURCES OF ORGANICS USED TO PRODUCE RNG INCLUDE:



FOOD WASTE

**66.5 MILLION
TONS / YEAR**



WASTEWATER

**17,000
FACILITIES**



**AGRICULTURE
WASTE**

**8,000
LARGE FARMS
AND DAIRIES**



LANDFILL GAS

**1,750
LANDFILLS**

- ▶ MSW: 10,000 tons
- ▶ WWTP / MSW: 100,000 residents
- ▶ AD: 500 head (as low as 150 when mixing organics)



The Case for RNG



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The Case for RNG

- ▶ Cut Smog & Air Pollution
- ▶ Combat Climate Change
- ▶ Stabilize Fuel Price Volatility
- ▶ Reduce Dependence on Foreign Oil
- ▶ Curve Unsustainable Waste Practices



Renewable Natural Gas is...

- ▶ Clean
- ▶ Domestic
- ▶ Abundant
- ▶ Affordable
- ▶ Sustainable



RNG provides an **ultra-clean**, very-low carbon fuel to a **new generation of medium and heavy duty NGVs**.

And with the new **REGS Bio-Intermediate Pathways** will become an essential component of **all vehicle fueling**.



USING
100%
RNG



in vehicles can reduce
GHG emissions by
more than



USING
20%
RNG-blend



provides a **GHG**
reduction between



RNG

from some sources are
carbon negative,
meaning that they
sequester **GHG** during
the fuel lifecycle.



NATURAL GAS PROVIDES



90% LOWER NO_x EMISSIONS
WITH NEW "NEAR-ZERO" ENGINE

99% SO_x REDUCTION

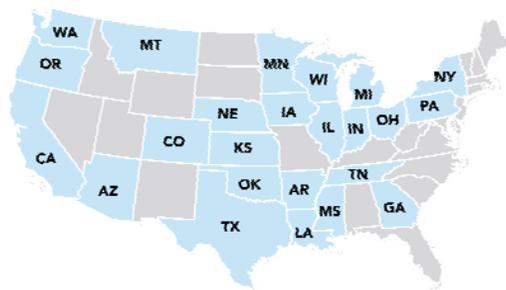


RNG helps create **fuel security** by diversifying America's fuel supply and **reducing dependence** on foreign oil



56 RNG Projects. 48 Inject into NG Pipelines.
37 Transportation Fuel. 19 Electricity.

RNG projects operate in 24 States;
Under Construction in 5 New State this year.



RNG + NGVs

provide consumers with
vehicles and fuel options
increasing competition and
driving down prices at the pump





RNG promotes **sustainability** and helps ensure waste isn't wasted



**U.S. RETAILER AND
CONSUMERS DISCARD
133 BILLION
POUNDS OF FOOD
ANNUALLY**



TRILLION
POUNDS
OF FOOD
IS SQUANDERED
GLOBALLY EVERY YEAR



IF FOOD WASTE WERE A
COUNTRY, IT WOULD BE
THE 3RD LARGEST
GHG EMITTER
IN THE WORLD BEHIND
THE **UNITED STATES**
AND **CHINA**



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The Renewable Natural Gas Industry is Gaining Momentum



RNG PRODUCTION FOR TRANSPORTATION FUEL

GREW BY 5X

BETWEEN 2013 AND 2015

IS ON PACE TO **TRIPLE** IN VOLUME

BY 2018

25.9 M EGE

VS

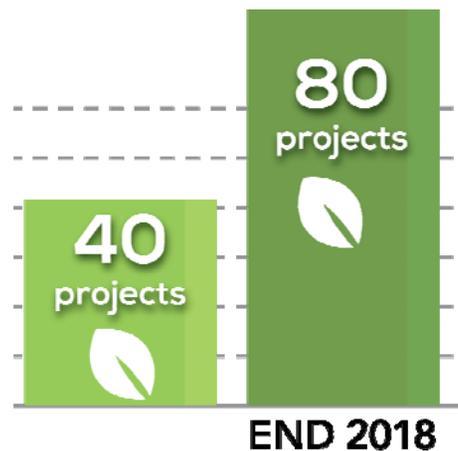
139.8 M EGE

VS

**481.5 M EGE
PROJECTED**



40 PROJECTS IN NORTH AMERICA
PRODUCE **ULTRA-LOW CARBON RNG**
FOR TRANSPORTATION FUEL USE; AND THE
NUMBER OF PROJECTS IS ON TRACK TO
DOUBLE TO 80 BY THE END OF **2018**





OF **NATURAL GAS** USED
IN TRANSPORTATION
TODAY IS **RNG**



The Renewable Natural Gas Industry is Gaining Momentum in North America

- ▶ Superior Environmental Attributes
- ▶ Industry Leadership
- ▶ Increased Awareness
- ▶ Intentional Advocacy
- ▶ Policy Success



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Policy Success drives Industry Success

Renewable Fuel Standard



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Policy Success drives Industry Success

RFS2

- ▶ Renewable Fuel Standard (RFS2): 40 CFR 80 M, as authorized in the Energy Policy Act of 2005; expanded and extended by the Energy Independence and Security Act of 2007.
- ▶ Requires transportation fuel sold in the US to contain a minimum volume of renewable fuel.
- ▶ RFS2 is administered by U.S. Environmental Protection Agency (EPA).
- ▶ EPA is required by statute to establish an annual renewable volume obligation (RVO).



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Policy Success drives Industry Success

RFS2

- ▶ Gasoline and diesel companies are Obligated Parties (OPs).
- ▶ Geologic natural gas (CNG/LNG) does not qualify as renewable fuel under RFS2.
- ▶ Renewable Natural Gas qualifies as a Cellulosic Biofuel under RFS2.
- ▶ RNG generates a **D3 Renewable Identification Number (RIN)** when a certain volume (1 EGE) of RNG is dedicated to transportation fuel use and a Pathway from production to fuel is registered with EPA.



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Policy Success drives Industry Success

RFS2: RIN

- ▶ High Value, Limited Liquidity
- ▶ RIN trades / values are reported by private companies like Argus Media and OPIS
- ▶ No substitute for a good gas marketer
- ▶ Value distributed throughout RNG value chain
- ▶ Always QAP
- ▶ Communicate RNG Volume to the RNG Coalition



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Corporate Sustainability Opportunities

Business Practice Built on **Social** and **Environmental Considerations**

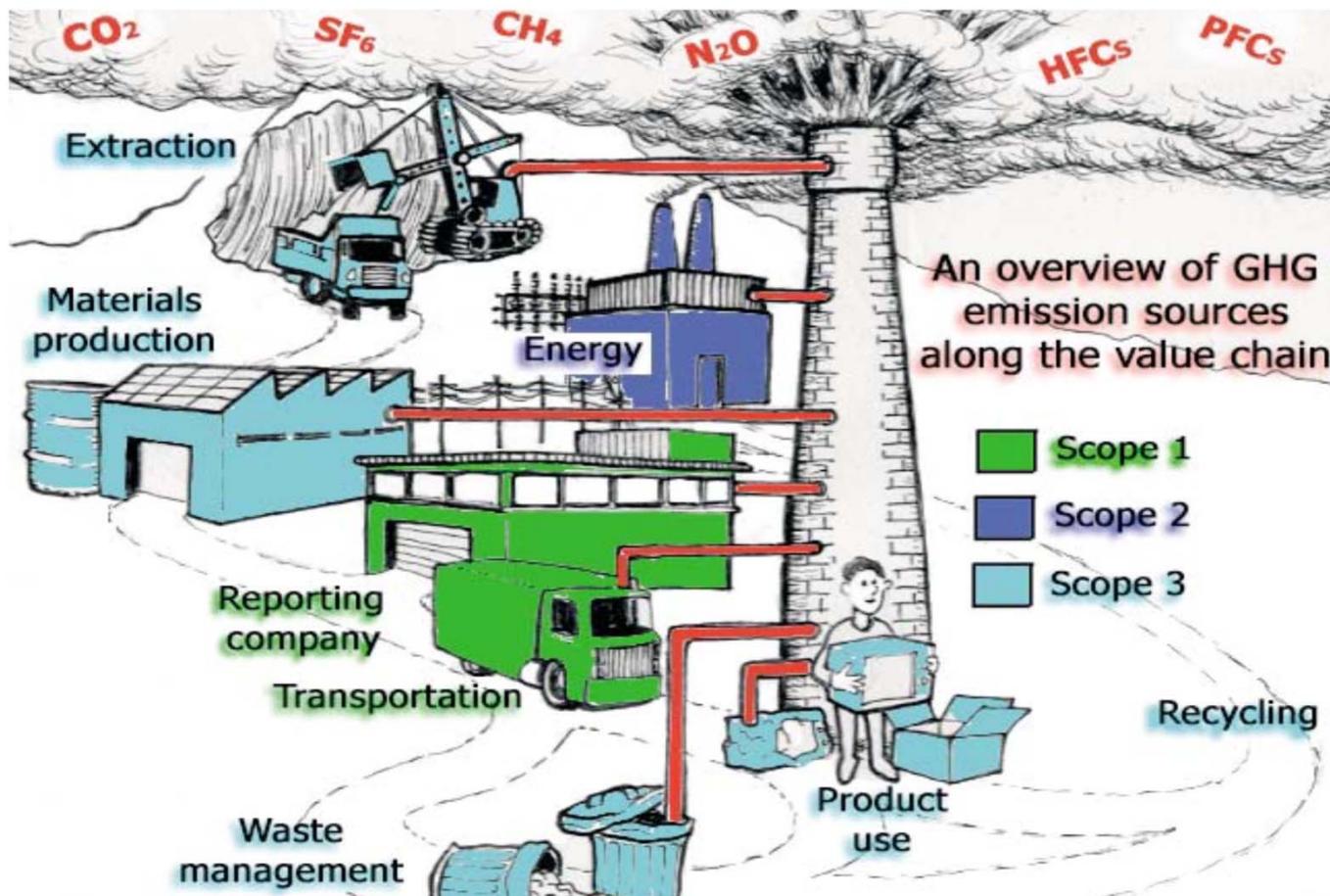
- ▶ Reducing GHG Footprint by some percentage, by some date
- ▶ Measure baseline & progress: **Carbon Dioxide (CO₂)**, **Methane (CH₄)**, Sulfur hexafluoride (SF₆), Nitrous oxide (N₂O), Hydrofluorocarbon (HFC), Perfluorocarbon (PFC)
- ▶ Increasingly standard business practice of the world's top companies
- ▶ World Resources Institute (WRI) & World Business Counsel for Sustainable Development (WBCSD) **GHG Protocol**
- ▶ GHG emissions assessment: directly and indirectly from an organization's activities



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Corporate Sustainability Opportunities



1. Direct
2. Energy (Elec. Steam. Heating. Cooling.)
3. Value Chain (up & down stream)

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One Product, Many Markets

- ▶ **Transportation:** higher financial upside due to RINs, shorter contracts
 - ▶ LFG to NGVs most common
 - ▶ LCFS adder
 - ▶ Renewable Hydrogen; EV
 - ▶ Bio-Intermediates: Ethanol, Diesel, Gasoline
- ▶ **Corporate Sustainability:** longer term deals, lower price, financing
- ▶ **Electricity:** onsite biogas, state renewable portfolio standards
- ▶ Heating & Cooling (MA); Manufacturing; Plastics
- ▶ Any NG application



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Your role in the Clean Fuel Future

- ▶ Continue to educate yourself
- ▶ Upgrade your biogas to RNG
- ▶ Incorporate RNG into your NVG Fleet or Station
- ▶ Talk to me about RNG Coalition Membership
- ▶ Attend **RNG 2016**: December 5-7, Coronado Island, San Diego, CA to meet the whole RNG industry



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Thank you!



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